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10/067,920	02/08/2002	Takayuki Sugahara	0102/0196	8965

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EXAMINER

KRONENTHAL, CRAIG W

ART UNIT PAPER NUMBER

2627

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,920

Applicant(s)

SUGAHARA ET AL.

Examiner

Craig W. Kronenthal

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-37 is/are pending in the application.
4a) Of the above claim(s) 29-34 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 18-28 and 35-37 is/are rejected.
7) ☒ Claim(s) 24, 25, 27 and 35 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 08 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed May 23, 2005, has been entered and made of record.
2. Applicant's election of claims 18-28 and 35-37, filed November 17, 2005, has been entered and made of record.

Response to Arguments

3. Applicant's arguments with respect to claims 18-28 and 35-37 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

4. Claim 35 is objected to because of the following informalities:
 - On line 7 of claim 35, "embedding" should be inserted between "embedding means for" and "the watermark information."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 18-28 and 35-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter

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which applicant regards as the invention. The language of the claims is such that it is difficult to understand what limitations correspond to what subject matter or what phrases modify which limitations. For example, in claim 18, the examiner has interpreted the generation of second contents data being performed by the parameter converting means, however, this is not clearly worded. Furthermore, claim 19 redefines the first segment contents data as now corresponding to specified pixels forming a specified picture portion. Whereas in claim 18, the first segment contents data was defined as a specified pixel. Dependent claims must further limit the claims from which they depend. All claims should be reviewed for clarity and proper antecedent basis because the claims as currently presented are difficult to decipher and one quickly becomes unsure as to exactly what is being claimed and what the scope of the claims is intended to be.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 18-23, 26, 28, and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed.

Regarding Claim 18 and 26: Reed discloses an apparatus for embedding a watermark into contents data, comprising:

- parameter converting means for converting (change) a specified parameter (color) of at least one segment of first contents data image sample) in response to parameter information (color key) [An image sample is changed in color in response to a color key (col. 2 lines 11-15).] and map data (key controlling mapping) [Another key may control the positions of the image into which a message is embedded (col. 6 lines 5-8), the segment corresponding to a specified pixel to generate second contents data [It is well known that an image sample may correspond to an image sample.], the parameter information designating the specified parameter which affects reproduction of the first contents data [The color key designates the change in color value affecting the original image sample (col. 2 lines 12-15).], the map data designating a position of the specified pixel [The mapping information designates positions in the watermark signal (col. 6 lines 5-8), and therefore, it would be obvious to one of ordinary skill in the art that the key controlling the mapping would designate the image sample. Reed does not expressly disclose the mapping information indicating the image sample that undergoes color adjustment, however, it would have been obvious that a key controlling the mapping would serve the function of choosing this input sample because this determines where the watermark data is to be placed.]; and

- mixing means for embedding the parameter information (color key) and the map data (key controlling mapping) into the second contents data as watermark information [In addition to the message or watermark, the embedder also adds control bit values (col. 8 lines 49-56), which represent the control parameters (Figure 1, 104), which include one or more keys (col. 6 lines 1-5). And as mentioned above, such keys may include a color key (col. 2 lines 11-15) and a key controlling mapping (col. 6 lines 5-8). Therefore, the color key and key controlling mapping may be embedded as a watermark.].

The analogous arguments made here with respect to claim 18 are applicable to claim 26.

Regarding Claim 19: Reed discloses an apparatus wherein the parameter converting means comprises means for converting a specified parameter (color key) of segments of the first contents data (image sample) which correspond to specified pixels forming a specified picture portion [The color value of an image sample, corresponding to a pixel or group of pixels in an image, is changed according to a color key (col. 2 lines 11-15).].

Regarding Claims 20 and 28: Reed discloses an apparatus wherein the mixing means comprises means for embedding copyright information (message, Figure 1, item 102) [The watermark embedding (Figure 1, item 106) embeds the message (102) (col. 5 lines 60-62). It is well known in the art that watermarks conventionally contain copyright information.], the parameter information (color key, col. 2 lines 11-15), and the map data

(a key controlling mapping, col. 6 lines 5-8) into the second contents data as watermark information [In addition to the message or watermark, the embedder also adds control bit values (col. 8 lines 49-56), which represent the control parameters (Figure 1, 104), which include one or more keys (col. 6 lines 1-5). And as mentioned above, such keys may include a color key (col. 2 lines 11-15) and a key controlling mapping (col. 6 lines 5-8). Therefore, the color key and key controlling mapping may be embedded as a watermark.]. The analogous arguments made here with respect to claim 20 are applicable to claim 28.

Regarding Claim 21: Reed discloses an apparatus as recited in claim 18, wherein the mixing means comprises means for converting a specified parameter (color) of segments of the first contents data (input image, 220) which correspond to specified pixels at watermark-embedded positions [The input image contains pixels to be embedded with the watermark signal.], and the parameter information (color key) includes a parameter value indicative of a rate of the conversion (indicates a change in color, col. 2 lines 12-15) of the specified parameter, wherein the mixing means comprises a first mixer and a second mixer, wherein the first mixer comprises pattern generating means (assignment map) for generating bits (positions of the image sample, col. 9 line 67 – col. 10 line 2) representing a predetermined bit pattern (the assignment map defines a pattern, col. 10 lines 30-32), specified-bit detecting means (perceptual analysis, 218) for detecting bits (identifying portions of the image, col. 11 lines 17-20) in the second contents data as specified bits which correspond to the specified pixels at

the watermark-embedded positions [The perceptual mask (222) represents positions where the watermark should be embedded (col. 11 lines 28-32).], calculating means (combine, 224) for calculating a desired bit pattern represented by the specified bits (perceptual mask, 222) in response to the predetermined bit pattern [The assignment map (210) is factored into the watermark information signal (214) as shown in Figure 2.) and a specified bit pattern (perceptual mask, 222), and changing means (combine, 228) for changing the specified bits (perceptual mask (222) to represent the desired bit pattern to convert the second contents data into bit-pattern-added contents data (watermarked image, 230), and wherein the second mixer (combine, 228) comprises means for embedding copyright information [It is well known in the art that messages (102) used in watermarking conventionally contain copyright information.], the parameter information (color key), and map data (key controlling mapping (col. 6 lines 5-8)) into the bit-pattern added contents data (watermarked image, 230) as watermark information (watermark signal, 226).

It would have been obvious to one of ordinary skill in the art that the watermark signal (226), which is combined (228) with the input image (220), may be a combination of the message (102), the color key, and the key controlling mapping. The examiner points out that Figure 2 is a detailed version of the embedder contained in the watermark embedding (106) of Figure 1 (col. 8 lines 43-45). Reed does not expressly disclose how the control parameters interface with the embedding procedure as shown in Figure 2. Nevertheless, it is clear that the control parameters, such as the color key and key controlling mapping, are a part of the watermark signal (226) so that they may

be combined (228) with the input image (220), which has been subject to a change in color.

Regarding Claim 22: Reed discloses an apparatus for reproducing original contents data from watermarked contents data generated by (1) converting a specified parameter of at least one segment of the original contents data in response to parameter information and map data to generate second contents data, the segment corresponding to a specified pixel, the parameter information designating the specified parameter which affects reproduction of the original contents data, the map data designating a position of the specified pixel, and (2) embedding the parameter information and the map data into the second contents data as watermark information [The analogous arguments made above regarding claim 18 are applicable to watermark contents data generation.], the apparatus comprising:

- parameter detecting means for detecting the parameter information and the map data from the watermarked contents data [The signature bit values, also referred to as the control bit values (col. 8 line 51), are extracted and used by the reader (col. 15 lines 6-16). As explained above in regards to claim 18, these control bits include one or more keys, such as a color key and control key for mapping.]; and
- parameter inversely converting means for inversely converting the specified parameter of at least one segment of the watermarked contents data in response to the parameter information and the map data detected by the parameter detecting means to reproduce the original contents data, wherein the segment of

the watermarked contents data corresponds to the specified pixel whose position is designated by the map information. [The reader uses the known attributes, such as a color key and control key for mapping, to estimate the watermark (Figure 5, item 504) (col. 12 lines 14-25). The reader then calculates the inverse of the watermarking function (col. 12 lines 42-46).].

Regarding Claim 23: Reed discloses an apparatus as recited in claim 22, wherein the watermarked contents data include copyright information, the parameter information, and the map data as the watermark information [The analogous arguments above regarding claim 23 explains the composition of the watermarked contents data.], and further comprising copyright information detecting means (Figure 5, item 512) for detecting the copyright information (message, Figure 1, item 102) from the watermarked contents data [The message, which is well known in the art to be copyright information, is reconstructed (col. 12 lines 62-63).].

Regarding Claims 35 and 36: Reed discloses an apparatus for embedding a watermark into contents data, comprising:

- generating means (user interface) for generating watermark information (color key) which affects reproduction of first contents data (image sample) [A user interface allows a user to generate a color key indicating the change in color to affect an image sample (col. 2 lines 11-15 and 28-38).];

- converting means for converting the first contents data (image sample) into second contents data (image sample after color change) in response to the watermark information (color key) generated by the generating means (user interface) (col. 2 lines 13-15); and
- embedding means (Figure 1, item 106) for the watermark information generated by the generating means into the second contents data generated by the converting means [In addition to the message or watermark, the watermark embedding (106) also adds control bit values (col. 8 lines 49-56), which represent the control parameters (Figure 1, 104), which include one or more keys (col. 6 lines 1-5). And as mentioned above, such keys may include a color key (col. 2 lines 11-15). Therefore, the color key may be embedded as a watermark.].

Regarding Claim 37: Reed discloses an apparatus for reproducing original contents data from watermarked contents data generated by (1) generating watermark information which affects reproduction of first contents data, (2) converting the first contents data into second contents data in response to the watermark information, and (3) embedding the watermark information into the second contents data [The analogous arguments explained above with regards to claim 18 are applicable to the generation of watermarked contents data claimed here.], the apparatus comprising:

- watermark information detecting means (Figure 1, item 110) for detecting watermark information from input watermarked contents information [The color

key, which has been embedded into the image sample as explained with regards to the mixing means of claim 18, is used to determine the validity of a watermark, and therefore must be detected from the input watermarked contents information (col. 2 lines 11-13). The signature bit values, also referred to as the control bit values (col. 8 line 51), are extracted and used by the reader (col. 15 lines 6-16). As explained above in regards to claim 18, these control bits include one or more keys, such as a color key.]; and

- decoding means (reader, Figure 1, item 116) for converting (calculating an inverse) the input watermarked contents information back to original watermarked contents information in response to the watermark information (attribute) detected by the watermark information detecting means [The reader uses the known attributes, such as a color key, to estimate the watermark (Figure 5, item 504) (col. 12 lines 14-25). The reader then calculates the inverse of the watermarking function (col. 12 lines 42-46).].

Allowable Subject Matter

8. Claims 24, 25, and 27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Braudaway et al. (PN 5,530,759) is cited for teaching color converting data to be digitally watermarked.
- Nakamura et al. (PN 6,246,775) is cited for teaching a method of digital watermarking including inserting data identifying the position of the watermark in the original input data.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig W. Kronenthal whose telephone number is (571) 272-7422. The examiner can normally be reached on 8:00 am - 5:00 pm / Mon. - Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 3, 2006
Craig W. Kronenthal



JOSEPH MANCUSO
SUPERVISORY PATENT EXAMINER